

REMARKS

The Office Action dated December 19, 2005, has been reviewed carefully, and the application has been amended in a sincere effort to place it in condition for allowance.

All objections and rejections are respectfully traversed.

Claims 1-9 were cancelled in the Amendment dated November 23, 2004.

Claims 10, 11, 12, 13 and 14 have been cancelled herein without prejudice.

Claims 15-20 have been amended directly or indirectly herein in order to enhance the claims and to clarify the distinctions which the present invention has over the cited references.

CLAIM REJECTIONS 35 USC SECTION 103

Claims 10-17 and 19 were rejected under 35 U.S.C. § 102(e) as being anticipated by United States Published Patent Application No. 2003/0091882 to Schmidt et al. ("Schmidt"), or United States Published Patent Application No. 2003/0175566 to Fisher et al. ("Fisher").

Claims 10, and 12-14 have been cancelled herein. Claim 11 is directed to, in part, providing a programmable controller that receives as an input, present and stored values of one or more operating characteristics including determining a minimum fuel cell output voltage by identifying a weakest cell.

Schmidt can measure a single fuel cell voltage but does not teach providing a controller that receives as an input present and stored values of one or more operating char-

acteristics including determining minimum fuel cell voltage by identifying a weakest cell. In the absence of these and other features, Schmidt cannot have anticipated the invention of claim 11.

Claim 15 provides for controlling the output power of the fuel cell stack so that does not exceed a maximum power needed by at least one of the battery or the application device being powered by the system. (Specification, page 15, line 27 to page 16, line 8) Schmidt does not measure or control output power in this manner as an operating characteristic to be controlled.

Claim 16 provides for controlling a set of selected operating characteristics by determining a plurality of desired values for each given characteristic, and comparing a minimum duty cycle required to achieve this and using this duty cycle as the new duty cycle in a DC-DC converter circuit. Schmidt, on the other hand, does not teach using a minimum duty cycle in order to substantially achieve individual desired values for given operating characteristics.

As Schmidt does not provide these and other features of Applicants claimed invention, then Schmidt cannot have anticipated Applicant's claims 15 and 16.

Similarly, claim 19 relates to determining whether the stack output voltage is at a desired value based on the desired temperature range of the fuel cell system for the present operating conditions. Though Schmidt mentions an external temperature sensor being provided outside of the housing, it does not appear to suggest monitoring temperature within the fuel system itself to control a hot state, overtemperature state, or a start up in a cold environment and therefore Schmidt has not anticipated the invention of claim 19.

Fisher is directed to equalizing the operating temperature of each module or cartridge in a fuel cell power system using module temperature and current as inputs, and shunting duty cycle as an output. The controller is configured to shunt current between the anode and the cathode of the fuel cell according to a duty cycle. The controller adjusts duty cycle in response to sensed temperature (Paragraph 32), and various current and voltage measurements (Paragraph 89) to provide a short circuit between the anode and cathode of the fuel cell. This does not anticipate Applicants claims because Applicants controller dynamically adjusts one or more operating characteristics by adjusting duty cycle of a DC-DC converter circuit, which is not taught by Fisher.

Thus, Fisher cannot have anticipated Applicant's claimed invention.

Claims 18 and 20 were rejected under 35 U.S.C. Section 102(b) as being anticipated by United States Patent No. 4,904,548 to Tajima ("Tajima"). Tajima does not disclose teach, or suggest the DC-DC converter circuit to monitor operating characteristics of a fuel cell system in order determine fuel cell concentration and adjusting the duty cycle to thereby achieve the desired value as set forth in amended claims 18 and 20. Claims 18 and 20 as amended are not anticipated by the Tajima reference.

Supplemental Information Disclosure Statement

A Supplemental Information Disclosure Statement is enclosed herewith for the consideration by the Examiner.

All of the objections and rejections have been respectfully traversed herein and it is respectfully submitted that the application is now in condition for allowance.

Please do not hesitate to contact the undersigned in order to advance the prosecution of this application in any respect.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Rita M. Rooney", written over a horizontal line.

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